

WHAT IS CLAIMED IS

1. A method for increasing capacity of a digital wireless network having a plurality of cell sites, comprising the steps of:

defining a pool of frequencies available for assignment; and

5 assigning one of the available frequencies from the frequency pool to each of the cell sites based on frequencies assigned to neighboring cell sites to minimize a number of neighboring cell sites assigned a same one of the available frequencies.

10 2. The method of claim 1, wherein the defining step includes the substep of:  
selecting at least two frequencies from the pool of frequencies available for assignment.

15 3. The method of claim 1, wherein the assigning step includes the substeps of:  
selecting one of the cell sites,  
determining frequencies assigned to the cell sites neighboring the selected cell site, and  
assigning one of the available frequencies to the selected cell site based on the determined frequencies assigned to the neighboring cell sites.

20 4. The method of claim 1, wherein the assigning step includes the substep of:  
determining an amount of interference at the cell sites caused by the neighboring cell sites after assigning frequencies to all of the cell sites.

of:

comparing the determined interference amount to a predetermined threshold,

increasing the pool of frequencies available for assignment when the determined

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assigning the increased pool of available frequencies to the cell sites so as to minimize the number of neighboring cell sites assigned a same one of the available frequencies.

6. The method of claim 1, further comprising the step of:

identifying a coverage area of the network; and

wherein the defining step includes the substep of:

selecting the frequencies available for assignment based on the identified coverage area of the network.

7. A system for increasing capacity of a digital wireless network having a plurality of cell sites, comprising:

a frequency defining component to define a pool of frequencies available for assignment;

and

5 an assignment component to assign one of the available frequencies from the frequency pool to each of the cell sites based on frequencies assigned to neighboring cells sites to minimize a number of neighboring cell sites assigned a same one of the available frequencies.

8. The system of claim 7, wherein the frequency defining component includes:

10 a selection component to select at least two frequencies from the pool of frequencies available for assignment.

9. The system of claim 7, wherein the assignment component includes:

a selection component to select one of the cell sites,

15 a determination component to determine frequencies assigned to the cell sites neighboring the selected cell site, and

a frequency assignment component to assign one of the available frequencies to the selected cell site based on the determined frequencies assigned to the neighboring cell sites.

20 10. The system of claim 7, wherein the assignment component includes:

a determination component to determine an amount of interference at the cell sites caused by the neighboring cell sites after assigning frequencies to all of the cell sites.

11. The system of claim 10, wherein the assignment component further includes:

5 a comparison component to compare the determined interference amount to a predetermined threshold,

a frequency component to increase the pool of frequencies available for assignment when the determined interference amount is greater than the predetermined threshold, and

10 a frequency assignment component to assign the increased pool of available frequencies to the cell sites so as to minimize the number of neighboring cell sites assigned a same one of the available frequencies.

12. The system of claim 7, further comprising:

15 a network coverage component to identify a coverage area of the network; and wherein the frequency defining component includes:

a frequency selection component to select the frequencies available for assignment based on the identified coverage area of the network.

13. A computer program product for increasing capacity of a digital wireless network having a plurality of cell sites, comprising:

a frequency defining module to define a pool of frequencies available for assignment; and

an assignment module to assign one of the available frequencies from the frequency pool

5 to each of the cell sites to minimize a number of neighboring cell sites assigned a same one of the available frequencies.

14. The computer program product of claim 13, wherein the frequency defining module includes:

10 a selection module to select at least two frequencies from the pool of frequencies available for assignment.

15. The computer program product of claim 13, wherein the assignment module includes:

15 a selection module to select one of the cell sites,

a determination module to determine frequencies assigned to the cell sites neighboring the selected cell site, and

a frequency assignment module to assign one of the available frequencies to the selected cell site based on the determined frequencies assigned to the neighboring cell sites.

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16. The computer program product of claim 13, wherein the assignment module includes:

a determination module to determine an amount of interference at the cell sites caused by the neighboring cell sites after assigning frequencies to all of the cell sites.

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17. The computer program product of claim 16, wherein the assignment module further includes:

a comparison module to compare the determined interference amount to a predetermined threshold,

a frequency module to increase the pool of frequencies available for assignment when the determined interference amount is greater than the predetermined threshold, and

a frequency assignment module to assign the increased pool of available frequencies to the cell sites so as to minimize the number of neighboring cell sites assigned a same one of the available frequencies.

18. The computer program product of claim 13, further comprising:

a network coverage module to identify a coverage area of the network; and wherein the frequency defining module includes:

a frequency selection module to select the frequencies available for assignment based on the identified coverage area of the network.

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defining a pool of frequencies available for assignment;

determining frequencies assigned to the cell sites neighboring the selected cell site; and

assigning one of the available frequencies to the selected cell site based on the determined

frequencies assigned to the neighboring cell sites to minimize a number of neighboring cell sites

assigned a same one of the available frequencies.

20. A computer-implemented method for optimally increasing capacity of a digital network having a plurality of cell sites, comprising the steps of:

- (a) defining a pool of frequencies available for assignment;
- (b) selecting one of the cell sites;
- 5 (c) determining frequencies assigned to the cell sites neighboring the selected cell site;
- (d) assigning one of the available frequencies to the selected cell site based on the determined frequencies assigned to the neighboring cell sites;
- (e) determining an amount of interference at the cell sites caused by the neighboring cell sites after assigning frequencies to all of the cell sites;
- 10 (f) comparing the determined interference amount to a predetermined threshold;
- (g) increasing the pool of frequencies available for assignment when the determined interference amount is greater than the predetermined threshold; and
- (h) repeating steps (d) through (g) using the increased number of available frequencies until the determined interference amount is less than the predetermined threshold.